

Remarks

The Official Action rejected claims 1-31. Applicant has amended claims 1-12 and 29. Applicant has canceled claims 13-26. Claims 1-12 and 27-31 remain pending. Applicant respectfully requests reconsideration and allowance of the pending claims.

Claim Rejections under 35 USC 112

The Official Action rejected claims 1-12 and 17-27 under 35 USC 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter.

Claims 1-12

The Office Action rejected claims 1-12 as being unclear that claim 1 requires a memory device in the preamble to comprise itself. Applicant has amended the preamble of claim 1 to clarify that the invention is a memory system, which comprises a memory device, a memory controller and a first memory bus to couple the memory device to the memory controller.

Further, claim 1 recites that the memory device further comprises an interface buffer coupled to the storage array and having a first interface to couple the memory device to the first memory bus. Literally, the memory device of claim 1 has the interface buffer and the interface buffer has the first interface to couple the memory device to the first memory bus.

Therefore, claim 1 has distinctly claimed the subject matter which Applicant regards as the invention and is allowable. Withdrawal of the present rejection of claim 1 is respectfully requested. Each of claims 2-12 includes claim 1 as a base claim and is at least allowable for reasons stated above.

Claims 17-27

The Office Action rejected claims 17-27 for insufficient antecedent basis for the limitation "memory device" in the preamble. Applicant has canceled claims 17-26, and therefore, withdrawal of the present rejection of claims 17-26 is respectfully requested. Moreover, Applicant respectfully submits that claim 27 is an independent claim and recites "a computer system" in the preamble. Therefore, claim 27 has distinctly claimed the subject matter which Applicant regards as the invention. Withdrawal of the present rejection of claim 27 is respectfully requested.

Claim Rejections under 35 USC 102

The Official Action rejected claims 1, 2 and 11 under 35 USC 102(e) as being anticipated by Walker et al. (US Patent 6,845,472). Applicant respectfully requests reconsideration and withdrawal of the present rejection.

As is well-established, in order to successfully assert a prima facie case of anticipation, the Office Action must provide a single prior art document that includes every element and limitation of the claim or claims being rejected. Therefore, if even one element or limitation is missing from the cited document, the Office Action has not succeeded in making a prima facie case.

Claim 1 recites a memory system comprising: a memory device, a memory controller and a first memory bus to couple the memory device to the memory controller, wherein the memory controller **accesses the memory device in response to a command issued from any devices and controls functions carried out by the memory device**, is unanticipated by Walker.

Claim 1 has been amended to clarify that the first memory bus, the memory controller and the any devices are separate from the memory device, in which the any devices issue command to access the memory device. In other words, the

memory device does not include the first memory bus, the memory controller and the any devices.

The Office Action asserts that all of the elements in Figure 6 of Walker are included in a memory device despite the fact that they are called by different names in the reference. If all of the elements in Figure 6 define the memory device, Applicant believes that Walker does not teach a memory controller to access the memory device in response to a command issued from any devices and to control functions carried out by the memory device for the following reasons:

Firstly, in response to the assertion in the Office Action that all of the elements in Figure 6 define the memory device, the memory device comprises memory subsystem 40, host controller 58, memory network bus 60 and output 68. Alternatively, components 13, 15, 16, 17 and 18 of computer system 10 in Figure 1 define the memory device. The memory device does not comprise other components of computer system 10 in Figure 1, e.g., components 11, 14, 19, 20 and 21.

Secondly, Walker teaches that each of the other components of computer system 10 only accesses the memory device in response to a command issued from the component itself (e.g., component 11) or from a limited number of components (e.g., component 19). None of the other components accesses the memory device in response to a command issued from any devices that should include all of the other components.

Thirdly, Walker teaches that the other components of computer system 10 (e.g., components 11, 14, 19, 20 and 21) read/write data from/to the memory device. However, none of the other components controls functions carried out by the memory device, which may, for example, include control timing of read/write functions carried out by the memory device.

Since Walker does not teach each and every limitation of claims 1, 2 and 11, Walker does not anticipate the invention of claims 1, 2 and 11. Applicant respectfully requests the rejection of claims 1, 2 and 11 be withdrawn.

If the present rejection is maintained, Applicant respectfully requests the Examiner to identify with specificity exactly what in Walker is being relied upon for a teaching of the memory controller that accesses to the memory device in response to a command issued from any devices and controls functions carried out by the memory device.

Claim Rejections under 35 USC 103 (Walker/Goris)

The Official Action rejected claims 3-10, 12-19 and 21-30 under 35 USC 103(a) as being unpatentable over Walker et al. in view of Goris (US Patent Application 2002/0167791).

Claims 3-10 and 12

Claims 3-10 and 12 include claim 1 as a base claim and are thus allowable for at least the reasons mentioned above. Applicant respectfully requests reconsideration and withdrawal of the present rejection.

Claims 13-19 and 21-26

Applicant has canceled claims 13-26 and therefore withdrawal of the present rejection of claims 13-19, 21-26 is respectfully requested.

Claims 27-30

As discussed in M.P.E.P 2142, to establish prima facie obviousness of a claimed invention, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference to combine reference teachings. The mere fact that references can be combined or modified does not render the resultant combination

obvious unless the prior art also suggests the desirability of the combination. In re Mills 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

Since Walker aims to a similar purpose to the invention of claims 27-30, namely, for checking memory errors, Applicant regards Walker as the closest prior art for the invention of claims 27-30. Applicant respectfully submits that an artisan who starts from the system of Walker would not combine Walker with Goris, since Walker does not suggest the desirability of the combination.

According to the assertion by the Office Action that all of the elements in Figure 6 define a memory device, the combination of Walker and Goris may result in a system that comprises a plurality of memory devices coupled to a controller, in which the controller controls data flows to/from the memory devices (Figures 6 and 7, paragraph 0043 of Goris). Each memory device comprises a plurality of memory cartridges and a host controller (Figures 5 and 6 of Walker), in which the host controller controls data flows to/from all of the memory cartridges. Each memory cartridge may comprise a plurality of memory devices and a memory controller, in which the memory controller may control data flows to/from all of the memory devices of that memory cartridge.

Applicant respectfully submits that Walker does not suggest the desirability of providing more than one host controller as stated in the above combination. It is clear to the artisan that one host controller is enough for the system of Walker, since one host controller can fulfill the functionality of coordinate data flows among all of the devices of the system, including processors 11, cache accelerator 14, I/O devices 19, and memory controller 15. To duplicate the host controller would increase the cost, lower the work efficiency and expense more space.

Further, Applicant respectfully submits that Walker does not suggest the desirability to provide one more controller that couples to the host controller and controls data flows to/from the host controller as stated in the above combination. Figures 1, 5 and 6 of Walker teach that the system comprises a plurality of memory cartridges to store data. Each memory cartridge has one memory controller to control data flows to/from all of the memory devices of that memory cartridge, and the host controller is used to control data flow to/from all of the memory controllers of the system. Applicant fails to see the desirability in Walker to further provide a controller to control data flows to/from the host controller, which would increase cost, lower the work efficiency and expense more space.

Since Walker does not suggest the desirability of the combination, the Examiner has failed to present a prima facie case of obviousness in regards to claims 27-30. Applicant respectfully requests the rejection of claims 27-30 be withdrawn.

If the present rejection is maintained, Applicant respectfully requests the Examiner to identify with specificity exactly what in Walker is being relied upon for the desirability of providing more than one host controller and of providing one more controller that couples to the host controller and controls data flows to/from the host controller.

Conclusion

The foregoing is submitted as a full and complete response to the Official Action. Applicant submits that all remaining claims are in condition for allowance. Reconsideration is requested, and allowance of all remaining claims is earnestly solicited.

Should it be determined that an additional fee is due under 37 CFR §§1.16 or 1.17, or any excess fee has been received, please charge that fee or credit the amount of overcharge to deposit account #02-2666. If the Examiner believes that there are any informalities which can be corrected by an Examiner's amendment, a telephone call to the undersigned at (503) 439-8778 is respectfully solicited.

Dated: 12/12/06

Respectfully submitted,



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